11/06/13 Agenda

- Warm up

- Review 3.2 Worksheet (last nights homework)
    - Solving Inequalities by Adding/Subtracting

- Section 3.3
    - Solving Inequalities Using Multiplication or Division

- Homework - Worksheet 3-3

Warmup:

- Grab a slip of paper
- Put your name on it

- Distribute **-4(-2+x)**

$8 - 4x$

$-4x + 8$

	-2	+x
-4	+8	-4x

$8 - 4x$

$7x - 4(x - 2)$

Section 3.3 - Solving Inequalities Using * and /
Target 3C

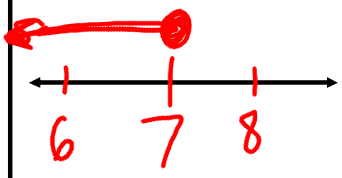
Goal: Use multiplication or division to solve inequalities.

Review from Yesterday: Solve and graph the following inequalities.

$x + 3 \leq 10$

$-3 \quad -3$

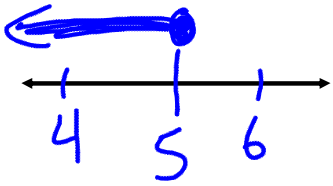
$x \leq 7$



$x - 7 \leq -2$

$+7 \quad +7$

$x \leq 5$



Solving Inequalities by Multiplying or Dividing

Before we learn how to solve inequalities using multiplication or division, let's take a look at one without variables:

$3 < 8$

$+11 \quad +11$

$14 < 19$

$-7 \quad -7$

$7 < 12$

$* 2 \quad * 2$

$14 < 24$

$* -3 \quad * -3$

$-42 > -72$

$10 > 2$

$+20 \quad +20$

$30 > 22$

$-2 \quad -2$

$28 > 20$

$\div 2 \quad \div 2$

$14 > 10$

$\div -2 \quad \div -2$

$-7 < -5$

What do we notice? Does the sign change at all?

Rule: When we ***multiply*** or ***divide*** by a negative number, we MUST flip the sign (symbol).

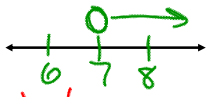
(Note: Does this say ***ANYTHING*** about adding or subtracting negative numbers?)

Section 3.3 - Solving Inequalities Using * and /
Target 3C

Examples:

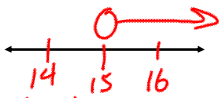
$\frac{2x}{2} > \frac{14}{2}$

$x > 7$



$3\left(\frac{x}{3}\right) > (5)\,3$

$x > 15$



$\frac{-4x}{-4} \geq \frac{20}{-4}$ FLIP

$x \leq -5$

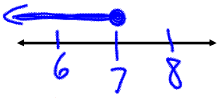
$-3\left(\frac{x}{-3}\right) \geq (-2)\cdot -3$ FLIP

$x \leq 6$

You Try:

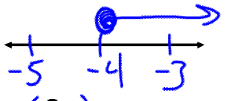
$\frac{7y}{7} \leq \frac{49}{7}$

$y \leq 7$



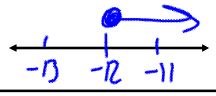
$\frac{-3p}{-3} \leq \frac{12}{-3}$ FLIP IT

$p \geq -4$



$-2\left(\frac{m}{-2}\right) \leq (6)\cdot -2$ FLIP

$m \geq -12$



$\frac{2}{1}\cdot\left(\frac{3}{2}p\right) > (6)\,2$

$\frac{6p}{2} > 12$

$\frac{3p}{3} > \frac{12}{3}$

$p > 4$

Summary:

Whenever we **Multiply or Divide** by a ***negative*** number, we flip the sign (symbol). If we do ANYTHING else, we leave the sign alone. This is the only real difference between solving inequalities and solving equations.

$\frac{2}{3}\cdot\left(\frac{3}{2}p\right) > \left(\frac{6}{1}\right)\frac{2}{3}$

$p > \frac{12}{3}$

$p > 4$